

CLAIMS

What is claimed is:

1. A connector for electrically connecting to a series of closely spaced plates having a substantially uniform spacing therebetween, the connector comprising:

a plurality of recesses located along the length of an elongated elastomeric member; and

a plurality of electrical contacts, each of the plurality of contacts being associated with the elastomeric member in registration with one of the plurality of recesses;

wherein the elongated elastomeric member is adapted to expand or compress along its length to receive one of the closely spaced plates in each of the plurality of recesses and to thereby register each of the plurality of electrical contacts with a corresponding contact point on one of the closely spaced plates.

2. A connector according to Claim 1, wherein the plurality of recesses includes a plurality of pairs of recesses, each of the plurality of pairs of recesses include one of the pair of recesses being located in a first side of the elongated member and being aligned with the other of the pair of recesses located in an opposite side of the elongated member.

3. A connector according to Claim 1, wherein the plurality of recesses are located in a bottom side of the elongated member.

4. A connector according to Claim 1, wherein at least one of the plurality of electrical contacts is located in one of the plurality of recesses.

5. A connector according to Claim 1, wherein the elongated elastomeric member includes electrical conductivity from a first side thereof to an opposite side thereof, but not having meaningful conductivity in use along its elongated length, and wherein at least one of the plurality of electrical contacts is associated with the part of the elongated elastomeric member.

6. A connector according to Claim 5, wherein the electrical conductivity from a first side thereof to an opposite side thereof has an electrical resistance which is from about 100 OHMS to about 2000 OHMS.

7. A connector according to Claim 1, wherein at least one of the plurality of contacts in contact with a plate is substantially orthogonal to at least one of the other of the plurality of contacts in contact with the same plate.

8. A connector according to Claim 1, wherein at least one of the plurality of electrical contacts includes a contact member which extends through the elastomeric member.

9. A connector according to Claim 1, further comprising a locking member removably attached to one of the closely spaced plates or the contact member which is adapted to hinder the removal of the connector from the series of closely spaced plates.

10. A connector according to Claim 1, wherein a segment of the elastomeric member is compressed between a pair of adjacent members, the pair of adjacent members being a pair of adjacent plates or two members of a single plate.

11. A connector for electrically connecting to a plurality of closely spaced plates having a substantially uniform spacing therebetween, the connector comprising:

- (a) an elongated elastomeric member having a plurality of recesses, the plurality of recesses each being associated with one of the closely spaced plates; and
- (b) a plurality of electrical contacts, the plurality of electrical contacts being associated with the elastomeric member in registration with one of the plurality of recesses;

wherein the elongated elastomeric strip is adapted to adjust to any tolerance variation in the substantially uniform spacing between the plates and wherein a segment of the elastomeric strip is confined under compression between two adjacent members, the two adjacent members being either two adjacent closely spaced plates or two adjacent members of a single plate.

12. A connector according to Claim 11, further comprising an locking member associated with the adjacent members which resist removal of the part of the connector unless the elongated elastomeric strip is compressed and wherein the locking member is removably attached to the series of closely spaced plates.

13. A connector according to Claim 11, wherein the elastomeric member is adapted such that its being confined under compression generates a force which pushes at least one of the plurality of contact points in a first direction against a plate.

14. A connector according to Claim 13, wherein the elastomeric member is adapted such that its being confined under compression generates a force which pushes at least another one of the plurality of contact points in a direction which is substantially orthogonal to the first direction.

15. A connector according to Claim 11, wherein one of the adjacent members or the contacts has a retention recess which is adapted to cooperate with a locking protrusion in the other of the adjacent members or the contacts.

16. A connector according to Claim 11, wherein the plurality of recesses includes a plurality of pairs of recesses, each of the plurality of pairs of recesses include one of the pair of recesses being located in a first side of the elongated member and being aligned with the other of the pair of recesses and located in an opposite side of the elastomeric member.

17. A connector according to Claim 11, wherein the plurality of recesses are located in a bottom side of the elastomeric member.

18. A connector according to Claim 11, wherein at least one of the plurality of electrical contacts is located in one of the plurality of recesses.

19. A connector according to Claim 11, wherein the elongated elastomeric member has electrical conductivity from a first side thereof to an opposite side thereof, but not having meaningful conductivity in use along its elongated length, and wherein at least one of the plurality of electrical contacts is associated with the part of the elongated elastomeric member.

20. A connector according to Claim 19, wherein the electrical conductivity from a first side thereof to an opposite side thereof has an electrical resistance which is from about 100 OHMS to about 2000 OHMS.

21. A method of providing electrical connection to a series of closely spaced plates, comprising:

associating a plurality of electrical contacts with an elongate elastomeric member;

compressing a segment of the elongate elastomeric member and placing the compressed segment between a pair of adjacent members of the series of closely spaced plates; and

locating at least one of the plurality of contact points in contact with one of the closely spaced plates by allowing the compressed segment to push against the pair of adjacent members to generate a force which pushes at least one of the plurality of contact points against the one of the closely spaced plates.

22. A method according to Claim 21, further comprising reducing a dimension between the pair of adjacent members by associating a locking member with the series of closely spaced plates.

23. A method according to Claim 22, wherein associating a locking member with the series of closely spaced plates further comprises applying a compressive force to the elastomeric strip.

24. A method according to Claim 21, further comprising monitoring a fuel cell stack by providing an electrical connection between the contacts and a monitoring device.

25. A method according to Claim 21, wherein placing the compressed segment between a pair of adjacent members further comprises moving the compressed segment past a locking protrusion associated with one of the adjacent members.

26. A method according to Claim 21, wherein locating at least one of the plurality of contacts in contact with one of the closely spaced plates further comprises locating a locking protrusion within a cooperating recess.

27. A method according to Claim 21, wherein associating the electrical contact includes pushing the contact member at least partially through the elastomeric member.

28. A method according to Claim 21, wherein associating the electrical contact includes silk screening a contact on a surface of the elastomeric member.

29. A method according to Claim 21, wherein associating the electrical contact includes adhesively attaching the electrical contact to the elastomeric member.

30. A method according to Claim 21, wherein associating the electrical contact includes locating one of the contacts within one of the recesses.